Remarks

Contrary to the Office Action cover sheet, claims 1-23 are pending in the application. Claims 15-19 were allowed and claims 1-14 and 20-22 were rejected by the Examiner. Claims 1, 8, 9 and 20 have been amended to clarify that the conjugate comprises a single biomolecule or protein with one or more initiator sites thereon, at least one of the initiator sites having a polymer chain attached thereto. The chain is formed in situ by reacting a monomer with the initiator site and growing the polymer chain therefrom. A single polymer chain propagates from the initiator site; if there are more than one initiator sites then each can propagate a separate and independent polymer chain.

The examiner contends that the present application does not have support in the Provisional Application for several features in the present claims and therefore those claims do not have the benefit of the Provisional filing date. Applicants do not agree with that conclusion and reasserts the arguments in support of its position. However, in light of the present amendment of the claims which distinguish over the cited references and the Arguments and Declarations enclosed herewith that issue is presently moot. Applicants reserve the right to readdress that issue in the future.

Claims 6 and 7 were rejected under 35 USC §112, first paragraph, as not complying with the written description requirement. Claim 6 is dependent on claim 4 which is dependent on claim 1. Claim 7 is dependent on claim 6. The examiner contends that "a non-interacting initiator which does not bind to the protein is added along with the protein modifying initiator" is not supported by the specification and that para 0064 indicates that the non-interacting initiator is added to a protein already modified by an initiator. (Note that the language of claim 6 has been modified by amending "protein modifying initiator" to "initiator modified protein"). The examiner's attention is directed to para. 62-67. The non-interacting initiator is carried on the beads. These beads are mixed with streptavidin modified with the biotinylated initiator (referred to as the initiator modified protein) and polymerization is initiated on the beads as well as on the

initiator modified protein. The non-interacting initiator is NOT added to a protein (i.e., does not attach to the protein) and remains on the beads; it initiates reactions but does interact with the protein, it only exists in the same reaction mixture with the protein. The polymer that grows from the bead also does not react with the protein. It is respectfully submitted that claim 6 and 7 are fully supported at least by the identified sections of the specification.

Claims 11, 12 and 22 were rejected under 35 USC §102(a) as anticipated by Heredia et al. Enclosed herewith are two (2) duplicate Declarations executed by Heather Maynard and Debora Bontempo to the effect that the subject article was not known or used by others prior to, or described in a printed publication prior to, the invention by applicant. Said article is applicant's own publication of their invention. The remaining four co-authors, namely Karina L. Heredia, Tiffany Ly, Joshua T. Byers and Sven Halstenberg were in fact individuals working for or under the direction of the inventors Maynard and Bontempo and are not inventors of the subject invention. Also enclosed are Declarations signed by the other four (4) authors attesting to the fact that they are not inventors of the invention claimed in the subject application.

Claims 1-3, 5, 9, 13 and 21 were rejected under 35 USC §102(b) as anticipated by Gololobov et al. In regard to claim 1, the examiner contends that Gololobov teaches preparation of a polymer-enzyme/biomolecule conjugate comprising reacting a monomer with sites on the enzyme modified to include polymerization sites resulting in one or more polymer chains. However, Gololobov does not show or suggest the production of each polymer-biomacromolecule conjugate comprising a single biomolecule with one or more polymer chains attached to the one or more initiation sites. In fact, Gololobov teaches the production of numerous entangled molecules forming a gel; not a single polymer conjugated to each initiator site on the biomolecule. Specifically the examiner's attention is directed to Col. 5, lines 22-27 of Gololobov where it is indicated that the initiating agent is added to the mixture. It is <u>not</u> on the enzyme. The result is that the polymerization does not grow from the initiator site on the biomolecule and instead polymerization of the monomer can be random and uncontrolled. The

result, as stated in Gololobov Example 6 (Col. 16, lines 36-40) is a nascent polymer attached simultaneously to more than one molecule of the modified enzyme thereby causing the formation of a stable, insoluble (and unusable) gel due to cross-linking. The result is not a single biomolecule with a polymer chain attached thereto. Instead, multiple biomolecules are attached to a single polymer chain, a result which cannot occur with the claimed invention.

Gololobov fails to show each and every feature set forth in claim 1 as amended and, therefore, claim 1 not anticipated by Gololobov. Accordingly, claim 1, as presently amended, is not anticipated and, therefore, is allowable. Claims 2, 3, 5 and 21 all dependent on claim 1 are likewise allowable

In regard to claim 9, and claim 13 dependent thereon, the remarks above are reasserted, and likewise distinguish claim 9 over Gololobov.

Claims 4, 8, 9, 10, 13 and 20 were rejected under 35 USC §103(a) as obvious over Gololobov et al. in light of Matyjaszewski in that, while Gololobov does not teach a modified polymerization site as being an initiator, Matyjaszewski teaches an atom transfer radical polymerization initiator attached to the macromolecule. Independent claims 8, 9, and 20 have been amended to distinguish over Gololobov. Addition of Matyjaszewski to Gololobov does not render obvious the subject claims. While Matyjaszewski suggests modifying a macromonomer by addition of a group X_3 to transform the monomer to a macroinitiator, he does so to create a block copolymer (i.e., an ABAB structure...). Applying the teachings thereof to Gololobov would appear to create a polymer with multiple alternating biomolecules and monomer to form a block copolymer, NOT one biomolecule per polymer chain. Therefore, claims 8, 9, and 20 are not obvious based on Gololobov in combination with Matyjaszewski; dependent claims 4, 10 and 13 cannot be obvious.

Claim 14 was rejected under 35 USC §103(a) as obvious over Gololobov et al. in light of Matyjaszewski and Jansen. Claim 14 is dependent on claim 9. For the reasons set forth above, Gololobov and Matyjaszewski do not teach claim 9 and therefore, claim 14 is not obvious by the addition of Jensen.

Claims 22 and 23 were rejected under 35 USC §103(a) as obvious over Gololobov et al . in light of Hoffman. The examiner states that Gololobov teaches claims 2 and 21. For the reasons set forth above, claims 2 and 21 are not taught by Golololov and therefore, the addition of Jensen to Gololobov cannot render dependent claims 22 and 23 obvious.

Claims 11 and 12 were rejected under 35 USC §103(a) as obvious over Bontempo et al. First claims 11 and 12 are dependent on claim 9. Claim 9 is neither shown nor obvious in light of Bontempo. Therefore, dependent claims 11 and 12 cannot be obvious based solely on Bontempo. It is also respectfully submitted that Bontenmpo teaches a totally different polymerization procedure which results in a different end product. Specifically, Bontempo teaches a method to prepare a polymer with a reactive end group. The polymer is then isolated and purified. The purified polymer is then added to a protein to form the protein-polymer conjugate. Although a pyridyl disulfide initiator is utilized to make the polymer, the polymer is NOT prepared in the presence of protein. Bontempo et al. is an example of the traditional method of first preparing a polymer chain modified with a reactive end group and then conjugating that preformed polymer to the protein such as is described in para. 0003 of the specification. It is an entirely different process than applicants' process described and claimed in the present application.

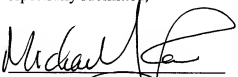
The Examiner has indicated that claims 15-19 are allowable. Further, no prior art has been cited against claims 6 and 7. As the §112 objection to claims 6 and 7 has been eliminated these claims are likewise allowable. It is respectfully submitted, for the reasons set forth above, independent claims 1, 8, 9 and 20, as amended herein, are not anticipated by Gololobov et al. and claims 2-5, 10-14 and 21-23 cannot be obvious in light of Gololobov in combination with one or more of Matyjaszewski, Jensen, Hoffman or Bontempo.

As the claims currently pending are not shown by any of the cited references or obvious based on a combination of those references, they are all patentable and a Notice of Allowance is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees required to Deposit Account 11-1580.

Respectfully submitted,

Date: March 30, 2009

By: 
Michael J. Ram
Registration No. 26,379
Attorney for Applicants

KOPPEL, PATRICK, HEYBL & DAWSON
2815 Townsgate Road, Suite 215
Westlake Village, CA 91361
Phone (805) 373-0060
Fax (805) 373-0051